

Certified Mail Return Receipt Requested: 7002 0460 0003 1936 4072

Sunoco, Inc. 3144 Passyunk Avenue Philadelphia, PA 19145-5299 215 339 2000

June 12, 2012

Mr. Edward Wiener Chief, Source Registration Air Management Services 321 University Avenue Philadelphia, PA 19104

RE: Request for Alternative Compliance Method under 40 CFR 60.106(i)(12)

Dear Mr. Wiener:

The Sunoco, Inc. (R&M) Philadelphia Refinery is requesting to use an alternative method for determining compliance with 40 CFR 60.104(b)(2) under 40 CFR 60.106(i)(12).

Without the use of an add-on control device to reduce SO2 emission, maintain sulfur oxides emissions calculated as SO2 to the atmosphere less than or equal to 9.8 kg/Mg (20 lb/ton) coke burn-off;

In 2006, Third Party contractors conducted stack testing for Ammonia and Oxides of Sulfur at 868 FCCU. Seven stack tests were completed during the time period of March through June of 2006. All of these results were submitted to Air Management Services on March 28, 2007. During these tests a total of twenty-two (22) runs were completed. The Oxides of Sulfur were determined based on SO2 and H2SO4. As part of this current request, using the ratio of the molecular weights, the H2SO4 was expressed as SO2 and then added to the SO2 stack test result to obtain the total sulfur oxides. The ratio of these results was then used to determine a multiplier to calculate the total sulfur oxides calculated as SO2 emissions. The average of the ratio of sulfur oxides to SO2 is 1.08. The testing results on May 16, 2006 at 12:36 were excluded from this average as they appear suspect. The 868 FCCU is equipped with a 40 CFR Part 60 certified Sulfur Dioxide (SO2) Continuous Emissions Monitor. The calculated factor would then be used as a ratio to obtain sulfur oxides emissions from the SO2 CEM. Using this ratio and the CEM measured SO2, the maximum CEM measured SO2 emissions would be limited to 9.1 (9.8/1.08) kg/MG coke burn-off.

Using the continuously monitored coke burn off rate, these sulfur oxide emissions as SO2 and equation in 40 CFR Part 60.106(b)(3) compliance can be tracked and documented. Please see attached calculations.

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Sunoco respectfully proposes to comply with 40 CFR 60.104(b)(2) using the certified SO2 CEM and the ratio of Total Sulfur Oxides to SO2 and calculate the daily Total Sulfur Oxides emission rate. There have been no major process changes at the FCCU since this test was conducted that would affect the emissions ratio.

Should you have any questions or comments in reference to this matter, please contact me at 215-339-2074.

Sincerely,

Charles D. Bayksdale Jr, RE

Environmental Manager

Enclosures (1)

CDB/pm

	3/17/2006	3/17/2006	3/17/2006	3/22/2006	3/22/2006	3/22/2006	3/23/2006	4/25/2006	4/25
Time		3/ 1 7/2006 10:45				3/22/2006 13:55	<u> </u>	4/25/2006 9:45	
	1 ' '					3/22/2006 14:55			
Stack Flow Rate (DSCFM)	81022	78853	79257	77349.1	81973.2	82783.8	82208.0	91039.1	90
H2SO4 (ppm)	4.33	5.55	4.82	13.78	18.11	13.39	9.45	3.15	
H2SO4 as SO2 (ppm)	2.83	3.62	3.15	9.00	11.83	8.74	6.17	2.06	
SO2 (ppm)	136	130	166	71	130	190	113	136	
Total Oxides of Sulfur (as SO2 ppm)	138.83	133.62	169.15	80.00	141.83	198.74	119.17	138.06	1
RATIO (SOx: SO2)	1.0	1.0	1.0	1.1	1.1	1.0	1.1	1.0	
AVERAGE:	1.08	(SO2) =	SOx						
21 (10 2 1 (2007))	04022	10053	70257	777240 1	04073.2	02702.0	22200.0	04020.1	00
Stack Flow Rate (DSCFM)	81022	78853	79257	77349.1	81973.2	82783.8	82208.0	91039.1	90
Fraction of Dry Air Qa (DSCFM)	0.9 72919.8	0.9 70967.7	0.9 71331.3	0.9 71470.6	0.9 77546.6	0.9 76740.6	0.9 77933.2	0.9 8 (390.4	81
% ozy	72919.8	0.0	71331.3	7.1470.6	77546.6	76740.6	7/933.2	6 (320M	O J.
Q oxy	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
% O2	1.4	1.1	1.5	1.3	1.3	1.2	1.2	2.0	
%CO2	16.9	16.5	17.1	11	11.5	11.5	12.0	15.0	
%CO	0	0	0	0	0.0	0.0	0.0	0.0	
Coke Burn Off Rate(Ib/hr) *	25717.8	24787.1	25304.1	19201.5	21091.0	21146.3	21732.2	26/177.9	25
H2SO4 (lb/ hr)	5.362	6.684	5.806	16.07	22.62	16.88	11.8	4	
H2SO4 as SO2 (lb/ hr)	3.50	4.37	3.79	10.49	14.77	11.02	7.71	2.61	
SO2 (lb/ hr)	129.059	117.37	124.728	56.61	108.2	158.9	93.7	126	
Total Oxides of Sulfur (as SO2 lbs/hr)	132.56	121.74	128.52	67.10	122.97	169.92	5.01.41	128.61	1
Rsox = Esox / Rc (ib/ton coke burnoff rate)	10.31	9.82	10.16	6.99	11.66	16.07	9.33	9.71	
AVERAGE:	8.74	lb/ton coke burn o	off						
<u></u>	(40 CFR 60.104(b)	(2) requires less th	nan or equal to 20	lb/ton)					
* Coke Burn off Rate based on Eq in 40 CFR Part 60.106(b)(3)									

	4/26/2006	4/26/2006	5/16/2006	5/16/2006.	5/16/2006	6/1/2006	6/1/2006	6/1/2006		
Time	4/26/2006 10:55	4/26/2006 13:20	5/16/2006 11:07	5/16/2006 12:36	5/16/2006 13:57	6/1/2006 11:30	6/1/2006 14:25	6/1/2006 16:20		
	4/26/2006 11:55	4/26/2006 14:20	5/16/2006 12:11	5/16/2006 13:40	- 5/16/2006 15:05	, 6/1/2006 12:30	6/1/2006 15:25	6/1/2006 17:20		
Stack Flow Rate (DSCFM)	97783.3									
H2SO4 (ppm)	3.15	2.76	1.56	90.16	7.40	5.91	22.44	18.50		
H2SO4 as SO2 (ppm)	2.06	1.80	1.02	58.88	4.83	3.86	14.66	12.08		
SO2 (ppm)	136	136	98	6	93	3 124	57	57		
				ì	i					
Total Oxides of Sulfur (as SO2 ppm)	138.06	137.80	99.02	64.88	97.83	3 127.9	71.7	69.1		
RATIO (SOx: SO2)	1.0	1.0	1.0	10.8	1.1	l 1.0	1.3	3 1.2		
AVERAG	iE: (See previous page	2)		1		4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4				
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				4	÷					
Stack Flow Rate (DSCFM)	97783.3	97242.0	80078.0	78580.0 [°]	79513.0	80353.7	30751.3	79757.0		
Fraction of Dry Air	0.9									
Qa (DSCFM)	87222.7									
% oxy	0.0				*					
О оху	0.0				0.0	0.0	0.0	0.0		
% O2	1.5	1.5	1.2	1.4:	1.1	1.5	1.5	1.5		
%CO2	12.0	12.0			17.2	2 16.0	16.0	16.0		
%CO	0.0		0.0	0.0	. 0.0	0.0	0.0	0.0		
Coke Burn Off Rate(lb/hr) *	24953.1	24929.0	25419.2	24748.5	25682.5	24373.3	24504.4	24181.9		
H2SO4 (lb/ hr)	4.7	4.1	2.15	123.657		7.23	2.7.6	22.5		
H2SO4 (ib/ iir) H2SO4 as SO2 (ib/ hr)	3.07	2.68								
SO2 (lb/ hr)	134.9	134.2								
302 (10) 111)	V T V E	J. → ¬ · · · ·		14 1 1 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	071.000		F No. 1 to 1	Figure 1 and 1		
Total Oxides of Sulfur (as SO2 lbs/hr)	137.97	136.88	91.20	86.18	91.22	65.1	. 64.5	60.6		
Rsox = Esox / Rc (lb/ton coke burnoff rate)	11.06	10.98	7.18	6.96	7.10	5.34	5.27	5.01		
AVERAG	iE: (See previous page)	See previous page) (Outlier excluded from								
				calculations)						
* Coke Burn off Rate based on Eq in 40										

^{*} Coke Burn off Rate based on Eq in 40
CFR Part 60.106(b)(3)